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ABSTRACT

A study sought to identify the cognitive strategies or techniques that expert middle school teachers use to help mainstreamed students learn from content area texts. Twenty middle school social studies and science teachers who had been identified as teachers who worked well with mainstreamed students were interviewed concerning what they thought made them effective. Particular emphasis was placed on how they helped students learn from text. A variety of approaches were identified. Many of the teachers seemed to emphasize student self-esteem and the learning of at least part of the content. To meet these ends, they often used strategies which circumvented learning from text. (Author/SR)

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Use of Cognitive Reading Strategies with Mainstreamed Students by Expert Middle School Content Area Teachers

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Running Head: Strategies

Abstract

Twenty middle school social studies and science teachers who had been identified as teachers who worked well with mainstreamed students were interviewed concerning what they thought made them effective. Particular emphasis was placed on how they helped students learn from text. A variety of approaches were identified. Many of the teachers seemed to emphasize student self-esteem and the learning of at least part of the content. To meet these ends, they often used strategies which circumvented learning from text.

This research was intended to address some very specific concerns in the teacher education program at South Dakota State University. In order to become certified to teach in South Dakota, all secondary teachers must complete a three credit content reading course. The general philosophy behind this requirement is that all teachers are teachers of learning in their content area and, in this society, reading is a primary learning mode. At present, anyone with a secondary certificate can teach at the middle school/junior high level. Hence, reading in the content area is a programmatic concern for any teacher education program in South Dakota by state mandate. The state is moving toward a separate middle school endorsement, however, which many of our secondary education students will want to add to their credentials. In addition to the general need for information on how content teachers are functioning as teachers of reading, there is a need for information specific to middle school classrooms.

A second concern is the way in which the needs of mainstreamed students are addressed in middle school classrooms. In general, graduates of the teacher education program at South Dakota State University have indicated a perceived weakness in their preparation in the area of working with mainstreamed students. Present students often express the belief that other students will resent mainstreamed students and that mainstreamed

students will make it so other students won't learn as much. Clearly this is an area which needs to be better addressed within the program.

The particular focus of this study was the cognitive strategies or techniques that teachers use to help mainstreamed students learn from text. There are a number of likely candidate strategies. A very limited list of examples might include such things as:

1) Going over the text and looking at subtitles and other organizational indicators to familiarize the children with the organization of the textual material (Graham & Johnson 1989, Reis, 1987).

2) Familiarizing the children with key vocabulary words (Graham & Johnson 1989).

3) Checking students' prior knowledge of content (Graham & Johnson 1989).

4) Ask students to predict what they think will learn in a reading section based on pictures, graphs, special words, titles, headings etc. (Bean, Sorter, Singer, & Frazee, 1986).

5) Providing the purpose(s) of an assignment prior to reading (Graham & Johnson 1989).

6) Teaching comprehension monitoring strategies (Ellis, Deshler & Schumaker, 1989).

7) Having students outline or otherwise summarize the reading material (Anderson & Hidi, 1989; Reis, 1987).

8) Using peer tutoring strategies, either in pairs or small groups (Wilcox, Sbardellati & Nevin, 1987; Trovato & Bucher, 1980; Conway & Gow, 1988).

9) Having students construct graphic representations of text (Jones, Pierce & Hunter, 1989; Bergerud, Lovitt & Horton, 1988)

The above list is by no means complete, but does serve to indicate the variety of possible approaches.

Anyone who works in a teacher preparation program comes to realize that there is a great deal of diversity in teacher practices and that not all teachers are effective teachers. Both of these are complications as one considers the melding of theory and practice. A survey by the authors of middle school science and social studies teachers in eastern South Dakota (in progress) indicates that not all teachers are comfortable with mainstreamed children nor do they agree on the best means for dealing with the cognitive demands of their content areas. In any case, describing what teachers do does not necessarily describe what they ought to do. If one is to seek the wisdom of practitioners, then it is probably best to seek wise practitioners.

Procedure

Resource room teachers and/or administrators in seven school districts were asked to identify social science and science teachers at the middle school level who were particularly effective with mainstreamed children. A total of 8 middle school science teachers and 12 middle school social studies teachers

were identified. Each teacher was then interviewed. The interviews were conducted as fairly open affairs and lasted between 30-60 minutes. The intent of each interview was to determine the following:

1) Did the teacher address cognition as a concern?

2) Was there a concern for cognition manifested in the context of reading and, if so, in what ways was it manifested?

3) What seemed to be the primary concern(s) of these good teachers?

All interviews were taped. The tapes were transcribed and sent to each participant for review. The reviews were than analyzed independently by the researchers. The results reported below by no means exhaust the material in the interviews, but do represent the areas of agreement of the two researchers as the material relates to the use of cognitive strategies and the concerns of the teachers.

Results

These were 20 motivated, energetic, dynamic individuals, each unique in special ways who seemed to value the uniqueness of their students. They were hard workers who would make up a separate test, stay after school, give up a planning period. There was no suggestion that a given action would be unacceptable because it would be too much effort.

I spend more time with them and I review more with them.

I'll review with them during my lunch period and we'll sit

down and we'll do it together. I do that with those kids all the time. They're in my room outside of class getting a lot extra one on one help. I don't eat lunch and that's when I get them in here. They're so wonderful, I love those kids. They work twice as hard as anybody else, and when they get a C on their test they're just as proud as can be. I would have a whole classroom of them just because of their effort. They're so much fun.

Developing Self-Esteem

The most obvious common concern expressed by all these teachers had to do with attitudes and the self-esteem of the students. One teacher explained the philosophy of the group by saying, "At the middle school level ... we probably put number one - three things - organization, responsibility which is kind of the same thing, and respect." The teacher emphasized this by stating, "At the seventh grade level it's just a real year of teaching those skills with, and I might even say sometimes before, the academic subject matter."

When it was noted that a social studies teacher seemed to devote a good deal of effort toward developing positive attitudes, she indicated that this represented somewhat of a departure from previous practice. "The last few years my whole philosophy has turned around. That's where it's all at for me now."

Teachers frequently used strategies to supply extra help in a way which built self-esteem. A science teacher stated that he normally met with mainstreamed students for an extra period every Wednesday. He emphasized, "This is extra credit, not extra help. This is extra credit. Their self-esteem is a little higher if they are not pulled out of the other classroom to go to direct study because they need special help."

Testing Modifications

For many of the teachers, the primary concern beyond attitude seemed to be that students learn at least part of the content and do well (or well enough) on the tests. The reasoning reflected the concern with attitudes since students would then experience success and feel good about themselves. In order to do this, many of the teachers adapted strategies which avoided problems with learning from text as well as altering expectations.

For example, a science teacher who modified reading assignments and tests for resource room students said, "On the test that is modified, the questions are simply recall, recognition and they are mostly multiple choice. Something where they could know the answer, they can see it and they can pick it out. There's no application of any type."

A social studies teacher described a different way to handle grading without making the same grade mean different things.

> A student can just do work in my classroom and get 70 percent without taking a test and that deals with like worksheets, notebook, keeping a journal. I grade on that without taking a quiz or a test or anything like that. On the other hand ... my upper level kids are required to do more work to get an A.

Teachers commonly modified the way tests were administered to mainstreamed students. The most common modification was having the exam read to the student. A physical science teacher said that, "When it comes time to take the test, I usually send them off to the resource room and have one of those people in there give the test to them." The teacher indicated that "they come up with better answers" when the test is read to them.

Several teachers offered explanations for having the test read. A social studies teacher argued for a better way of knowing what kids know with a consideration for learning styles.

> Those kids are no dummies, but if we have them have to try to read the material and do the test themselves, I'm not sure we would get a real accurate reading of how well they're doing. I do know I have one student that's not in any of the resource classes, but I know he has a real tough time reading and he will sit in my class and listen to my lectures. Now we're talking the other side of visual learning. He'll sit and listen to my classes, to my lectures, and then be able to recall that material and be

able to do fantastic on the test and write very well, but still has a tough time reading. Every kid is an individual and they are different and they have different styles and we're learning that. We used to just come in and say well this is the way I'm going to present it, you have to learn it. We don't necessarily do that. One of the things I try to do is give a variety of types of learning opportunities, a little bit of lecture a little bit of hands on work (some writing), essay question type things, some worksheet type deals where they do have to work with facts and other certain amounts of things that we do have to know that are factual and then take those facts and they can tie them together in an essay answer.

A science teacher elaborated on the use of oral exams with a student with serious learning problems.

Oral exams do not necessarily mean a lack of concern with understanding: Science, as far as vocabulary, they are responsible for doing vocabulary books, or vocabulary notebooks. But some of the kids leave the room, I have one young boy who can hardly read at all. He is responsible for knowing the vocabulary and just trying to associate that vocabulary word by sight. He can't handle the vocabulary definitions. All the on-hands type projects he does, he enjoys the activities. Hopefully we'll say, "Why are you

doing this?" during the experiment, asking questions ... to test his knowledge verbally instead of on paper.

Reading/Vocabulary Modifications

Two Science Teachers interviewed in tandem talked about how to get around reading problems. "In the content area for science what we've done is - we've had somebody read the book itself on a tape recorder and the kids can listen to the tape recorder and at least know what the reading is about. That's one thing we do."

These same teachers also use other approaches, suggesting that an alternative is to "...take the book and highlight the main points. Tell them what they are reading for ahead of time." When asked what to do if a teacher can't highlight in the text and doesn't have tapes, it was suggested that the teacher, "Go over the vocabulary ahead of time - again tell them the purpose of their reading." However, the teacher added, "I think the tapes would be the best." Incidentally, one school district had the whole science series taped by senior citizens, another got students to do the taping.

A number of teachers altered expectations by altering the content the child needed to learn. There seemed to be some ambivalence at times as to the justification for this. A science teacher talking about vocabulary said:

> Its very tough for them. Again, we try to cut back the number we give, picking out what I feel is the most important. Just certain words that I feel they need to

know. They may never know what they mean, but I like to have them have some success. That's what we try to do with the special education program is we try to build up the self-esteem. Have those kids get some success. You do this by not by watering down, just by cutting back on the number of questions.

The teacher went on to explain that, "This is a life science course. We go into very great detail. There's just some of those things that those resource kids I don't think have to know. They are going to be introduced to them, but I am not going to test them all."

The emphasis on vocabulary was commonly associated with differing expectations. A social studies teacher:

> And as far as reading the content area, our text book is extremely difficult for some kids to handle but it is well set up with bold face words and so when we're going through the contents, in the reading area, I will pick out certain sections that they can read that they can handle and have them list some of the content in that area or I will have them always do the to-define area so that they begin to pick a bit more vocabulary and I will reduce the number of words which they need. For instance, they'll be taking a test and the vocabulary load is twenty words and for resource kids I cut it down to eight.

The teacher also explained that vocabulary was an easier place for students to excel than other abstract areas such as checks and balances, separation of powers, or initiatives or referendums.

Another social studies teacher suggested that teachers, "Adjust the list to their need. Our ... special services teachers really fill a big void there for us. But yeah, adjust the list." The teacher went on to explain, "I might give the kids in a unit of three, four week unit, thirty to forty words. Maybe I just test twenty of them, so I give those twenty words to the kids that - you know I give them the twenty words that are on the test but the other kids don't [have this list]."

Not all teachers adjusted the content when they made adjustment in expectations. One social studies teacher described adjusting the unit of work instead.

> I found that with those students if you just give them a packet or a unit of material like I usually put together, that might be 5 or 6 pages long, they're defeated before they've even begun. They just look at that and say there is no way I can do this. They have a real defeatist attitude at first. So what I've done in those cases is just separated the unit and just give one page at a time. "Now let's make sure you understand what your supposed to do on this page, do this, hand this in, we'll make sure it's o.k. and go on to the next one. Just one thing at a time."

Sometimes it's even a matter of just setting mini-goals for them in class. If the whole thing is stapled together I say, "Now don't panic, this is all I want you to get done this period. Lets just work on this, let's make sure that we've got this down." And so we just sort of set mini-goals within the period and once that's done I'll go over and put a big O.K. on it so they can see that they are making progress. It helps them to break it down. They can say I've got that done and it's o.k. You correct it as they are doing it so they can see that they've accomplished something. If they do the whole thing and hand it in all at once nine times out of ten it is going to be wrong anyway, unfortunately. Its them saying "I couldn't do it, I didn't know how to do it." It's better to say "Let's do this one, let me know when you've got it done, check it, and put a big O.K. on it."

Some teachers provide aids to mainstreamed students which are not provided to other students in the class:

What I have done in the past is I have taken ... notes that I have given over a subject and I have copied them off and given them to the students beforehand and I have circled maybe three or four things that I have wanted them to spend most of their time with compared to maybe the other level kids might have six or seven things and the test then would be just over the things that I circled in their notes or on

their worksheet or in the quizzes but the workload would be a lot less than the higher level students.

A social studies teacher used several alternatives for helping students with notes.

> We sometimes supply a set of notes for those who are really, really weak. Other students that are a bit more capable sometimes have them copy notes from students who do have a good set of notes. Or we have students who take good notes who make an extra set for the student who is weaker. That's something that can be done pretty discreetly and not be a thing that with one student now embarrasses another student in front of his peers if you really set up those keys with students carefully. We've done that.

And from another teacher:

> Social Studies by its nature involves a lot of reading out of the text and for lower ability kids a lot of times I will script the text. What I mean by that is - I will make up a word sheet including chapter headings, key phrases and allow them to go through the material and get the main ideas out in a form of a lower ability worksheet. In most cases that will cover the material to the extent that it needs to be covered. In that way they can get around some of the major reading assignments with them.

Small Group Work

Although not all middle school teachers used formal cooperative learning strategies, many teachers used some form of small group instruction. A teacherr who used cooperative learning explained one method:

> Sometimes just give them one set of materials. Give them one worksheet or whatever instead of five worksheets. Just give them one worksheet. Assign different roles. Today you're the leader, tomorrow you're the leader. Take turns. That way it gives everybody a chance. Today you write down things. Sometimes when you do put high, low and two middles together the high person always wants to kind of take the lead and that way it kind of shifts around if you assign them specific tasks to do.

Another teacher used mixed ability groups as a means of helping students deal with more complex material.

> Yep, I work the kids in the cooperative learning groups. Not going strictly according to cooperative learning, but ... I set the groups up myself so that the resource or the chapter student is in with better students, so they're mixed. They normally do the projects together and when I hand out the assignments for the projects, I will always see that those students have the most concrete part of the assignment to do and then by working with the other kids they do pick up some of the concepts.

When asked if the brighter kids were angry having to put up with the lower kids in their class, one teacher answered, "No. They are very thoughtful to them normally and I find bright kids, they understand these kids are not as bright and we will assign them a test they can handle and they will help them out." This was consistent with what other teachers told us. The usual suggestion was to have the mainstreamed students work with different students if problems developed, but there would not generally be a problem.

Learning Styles

Nearly all these teachers directly expressed some concern with learning styles and using multiple methods of teaching in an effort to get to all learners. A teacher who used SQ3R (a comprehensive reading strategy first developed in the 1940's (Gall, Gall, Jacobsen & Bullock, 1990)) said, "I encourage them to do some of this out loud, if they can, so that they hear it also."

Another teacher stated, "Sometimes it's me reading it, sometimes its other students reading it. They need to hear it because having them read it on their own won't work. So we read it out loud whether its together in the class or I sit down and read it with them. Sometimes I have them read it orally to me and then I'll say "what did you just read to me?" and have them put it in their own words. "

A social studies teacher explained her strategy:

Whereas the other kids are reading their assignments and figuring out why this happened and why that happened these kids are working on their definitions. It seems to work better if they can understand some of the vocabulary, then they will understand what we are talking about in class. Then it seems to work out much better because so much of the lower level students problems are based on vocabulary and reading and understanding and if they can be involved in the regular classroom there is more interchange of ideas, understanding and things. They are more oral kids.

One social studies teacher advised beginning teachers that, "You've got to try. As a teacher you present all the avenues for learning." A science teacher from another school repeated some old advice and then gave some fine examples of other "avenues."

Tell me and I forget, show me and I remember, involve me and I understand. That is kind of the way I teach - pass them out a chapter, and I give some examples.

We just got done with the circulatory system. Take the heart, for example. In the circulatory system including the vessels, we rearranged the room, desks, into the shape of the heart and then they put tags on and the kids were actually blood cells in the chambers of the heart and they actually walked through - one person was a red blood cell and he or she had to travel through the heart and all around the room for the body parts. There's the involvement part

of it. Sometimes we do that before reading, sometimes we do that after reading. Usually there is some activity before so that when the term comes up the kids can, the abstract thought is there it helps them to concrete them. They also dissect the heart. That's usually at the end so all the terminology and known parts are there so they will know where they are making their mistakes there.

The same teacher also provided an exercise for teaching classification.

They take their shoes off. I'll bring them up to the front of the room. I wear a mask and then we divide - no, I don't - they subdivide the shoes, dress shoes, tennis shoes and then they are given a bunch of seeds. Later on then they subdivide the seeds just like a taxonomist would do so there's the involvement part of it there.

Study/Organizational Skills

Not all of these teachers addressed the problem of helping students to become better learners. The majority were more concerned that students learned the content and many of their strategies were ways of getting around the need to process text. Exceptions included several teachers who developed their own programs and those teachers whose schools had adapted an "approach". An example of the latter was a science teacher whose school has trained teachers in the use of the SQ3R approach.

> This is a good way to study science, if you have an assignment for survey, look through what your assignment is, look at the topic headings and so on, then form questions in your mind for each of those topics, go back and read the kinds of questions for each of those questions. I encourage them to do some of this out loud, if they can, so that they hear it also. The text that we use, which is Prentiss-Hall, is quite good in that the most important concepts are in heavy, bold print so I always tell them those are the most important things to look at and to also use their graphs and pictures.

A social studies teacher at a school where there was not an officially designated "approach" had her own version.

> At the beginning of the year I have a little mini-unit on making some textbooks, the glossary, the index, the vocabulary list. I teach Social Studies so there's geographical terms, definition section for the kids. We spend quite a bit of time also work with them using the Almanac and atlases.

Another social studies teacher was loaded with ideas and clearly worried about thinking. Her whole transcript is a gold mine, much of it unabashedly other teachers' gold. Below are excerpts included for the reader's education and entertainment:

> The very first week of school after we get the mechanics of seating charts and things like that done we spend about

three days just getting acquainted with our textbooks. Saying, OK, this is what it is like, how it's organized. Look at the neat things. This is what this means if it is in blue and this is what this means in red. If you are looking for specific facts, this is how you find them and if you are looking for general ideas, here's where the guides are for those. Trying to get the student to concentrate not on just memorizing and feeding back to me what I say, but on being able to use the textbook to generate their own information out of it. I don't believe that simply taking turns reading paragraphs in class is a good exercise and although there will be time when I will have my students refer to something specific in the book and say, "OK, let's read this aloud and talk about it," that's not a priority in my class. I spend a great deal of time going through a step by step [process] ... of how to read for content. Whether it's my eighth graders or whether it's my seniors, I say, "Guys, this is something that if you have not figured out this system, let me tell you this sucker works."

You break it up into segments. It's [called] multi-pass, and you are going to go through the material four or five different times and each time it is going to be task oriented. The first time we are going through we are just going to look at pictures .... The idea is that I never ask a student to sit down read the chapter as such. I

don't assign X number of pages. "The first thing I want you to do ... is to ... look at the introduction and the conclusion." I have shown them how to find that. "And I want you to just look at the questions they ask you in the introduction. Don't go any further. Then I want you to take a look at the pictures and when you come back be able to tell me what the pictures say." So we go through this possibly seven different times depending on what is in the chapter and at no point do I ever say sit down an read all the pages until we get to the very end where we have done all these other things.

The same teacher also directly taught note-taking along with other study skills.

There are ten steps and they go from step A and that is come physically prepared, be here on time, have a pencil and have a pen, down to number ten - don't lose your notes. Now that you have taken these marvelous things for Pete's sake don't feed them to your locker. It covers such things as in the beginning you come physically prepared, step 2 - you come mentally prepared, and part of that is if there is an assignment to read you come with that read but you also try to come and leave other things outside. When you get into the classroom, you sit so that you are comfortable. If the teacher has placed you where you can't see, ask to move. Don't wait for [the teacher] to pick up that you can't see

the board. We get into the actual listening. Listen for a while, don't try to write down everything the teacher says. Listen to how the teacher say it. Does the teacher repeat things, does the teacher number things? Develop a system. If a teacher numbers things, do you put the numbers out in front? You should. If the teacher repeats things, do you put little check marks or stars by it, or underline it. You should. There are seven steps total, including the coming prepared and that. And then the kind of mother hen, nagging things again like put these in chronological order. Try to be here every day to take your own notes, because your notes are better than somebody else's. Be sure that after you have taken a day of notes, you look at them before the next day so that they make sense. Don't try to take down everything, because I can talk faster than you can write. And some of us make that mistake, we are so busy writing that we can't listen and we can't sort things out. Having done that in general, now I would take time and I would tell the students specifically how I give notes and that I number things, that I will put things on the board, that I will draw pictures and maps for them on the board and that anything I put on the board should be in notes someplace. So I go through and I say these are the general rules but here's how you have to listen to me. And we do a day or two of just practicing, where I do some very general kinds of

stuff and then I give the next day, an immediate quiz. I had ten things that were important, I'm going to turn right around and ask them, "Did you get them?"

As might be expected, teachers also dealt with the organizational skills of students. In most cases, much of the organization seemed to be provided by the teacher. A social studies teacher:

> We do encourage all of our sixth graders here to keep a separate folder for each of our classes. They do see the other sixth grade teacher for two classes a day so they are going back and forth across the hall. They are not always in their own desk so I think organization is especially important there. Sometimes even some of their textbooks will fit in some of those folders if they are small enough and if they keep everything together. I really think it helps to be organized. When they are working on assignments, I try to encourage them to keep either that notebook or that worksheet or whatever piece of paper they are working on or whatever it is, in the folder all the time. When they're finished, my partner and I have developed a little system where we encourage them to hand in their papers immediately when they're done. We've allowed them to do that by organizing a set of, we call them the mailboxes, but what they really are is hand-in place for all the kids. We've cut milk cartons up and then we have the

kid's name on each milk carton and we have a different mail carton for each of our students for each subject so they know where each assignment goes whenever there is one for the next day. So what they get finished in school, they know where they can put it right away so that it doesn't get lost. If they do need to take it home to finish it, we encourage them right away when they come in in the morning to put their assignment in the mailbox so that before the time comes when that class meets later in the day they haven't lost it somewhere in between. We think that is something that has helped.

Conclusions

There are a number of factors which limit the reliability of attempts to generalize from this study. The study included no objective measure of teacher effectiveness so that there is no way to judge the relative "goodness" of the teachers who contributed their time and thoughts. One must also consider the possibility of biases in terms of what resource room teachers and administrators value in teachers. The interview process itself to some degree encouraged teachers to consider mainstreamed students with learning problems as a group, which undoubtedly contributed to some inappropriate over-generalization. While some of the teachers seemed comfortable with generalizing, others were quick to point out that they were describing means of teaching all students, regardless of categories, and that their

flexibility was not reserved for special education or resource room kids.

These teachers shared a number of characteristics. All seemed to be people who cared intensely about kids. All, either implicitly or explicitly, seemed to believe that a primary concern was the way their students felt about themselves. Almost all brought a real zeal for their particular content area as well. If there was any disappointment here, it was that many seemed to focus more on learning for the moment, rather than directly addressing skills which would be useful for learning in the future. In some cases the decision to take this focus was a conscious one, where the teacher argued for affective benefits. They essentially argued that if students are able to succeed, they will feel better about themselves and be willing to continue to learn. Although some teachers reserved higher level thinking for non-mainstreamed students and did not address metacognition at all, it should be noted that a few teachers regarded metacognition and higher level thinking as an appropriate concern for all their students.

Since the interviews were of limited duration, it is probable that further interaction with the teachers would yield much more information. It is to be hoped that, despite this limitation, the reader is able to benefit from the enthusiasm and varied expertise these teachers represent.

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